

The Maine Installer

Dedicated to Professionalism in Underground Tank Installation

Volume 3 Number 2

January 1995

Maine Ahead in Tank Replacement

Data from Maine's underground tank registration database suggest our State is farther along in replacing old tanks than the national trend. The December 1994 edition of *National Petroleum News (NPN)* reported the results of a survey conducted by the Petroleum Marketers Association of America (PMAA). The survey indicated that 56% of PMAA member's tanks have been brought into compliance with 1988 U.S. Environmental Protection Agency (EPA) deadlines for upgrading underground tanks. Among smaller marketers who are not PMAA members, the figure was 47%.

In contrast, the tank registration database maintained by the Maine Department of Environmental Protection (DEP) indicated in an analysis done on December 2, 1994 that 23,035 (77.0%) of Maine's 29,930 population of underground bare or asphalt-coated steel tanks have been removed or replaced. Work out the math and that leaves 6,895 tanks (23%) to be removed or replaced (Figure 1).

Of the bare and asphalt-coated steel tanks that remain in Maine, 3,446 are out of compliance from the 1989, 1991, and 1994 deadlines. The other 3,449 are due to be removed or replaced by October 1, 1997 (Figure 2).

PMAA's data appears to exclude many heating oil tanks, since they are excluded from EPA regulations. Maine's data, however, includes heating oil tanks. However, PMAA's data addresses all issues of whether or not the facilities are in compliance with EPA's records, while Maine's data, as compiled, only separates bare and asphalt coated steel tanks from tanks that have some form of corrosion protection. Some of Maine's tanks that have been replaced, especially those replaced before the effective date of EPA rules, could still be out of compliance with the EPA rules if there is no means of leak detection or if the piping does not meet Federal standards.

NPN further reported that tank manufacturing capacity is currently insufficient to meet demand if upgrades are accomplished nationally on schedule. Be thankful we're this far ahead.

New UST Contractor Certification Exams will Help Northeast Tank Owners Find Out Who's Qualified ... and Who's Not!

Some New England states and New York State are joining the growing ranks of state UST programs that want to see qualified, certified contractors installing and removing underground petroleum storage tank and piping systems. By January 1995, under

Figure 1. Bare/Asphalt Coated Steel Underground Tanks Removed and Remaining in Maine 12/2/94

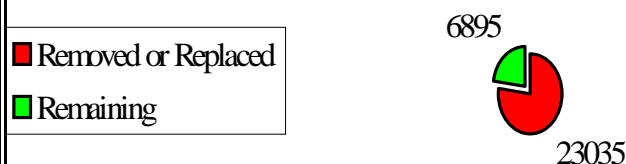
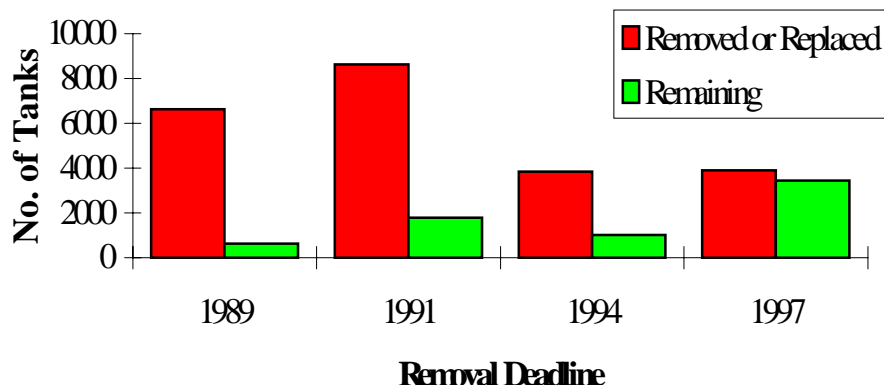


Figure 2. Underground Tanks Removed or Replaced and Remaining in Maine 12/2/94



ground storage tank (UST) contractors in the Northeast will have access to voluntary, fee-supported, certification exams for UST installation/refitting, UST decommissioning (closure), tank tightness testing, and UST cathodic protection. Future tests may address UST site assessment and aboveground storage tanks (ASTs). These tests have been developed by the International Fire Code Institute (IFCI), a non-profit public service benefit corporation, in cooperation with participating state agencies and practicing contractors.

This new regional voluntary certification effort means that tank owners in the Northeast will soon be able to acquire a list of tank contractors who have passed the IFCI exams. IFCI will provide these lists free to participating state agencies, and at cost to the public. The exams will be administered electronically under contract to IFCI by Assessment Systems, Inc. (ASI). Exam development and administration will be fee-supported through IFCI. Participating contractors will pay a fee of \$50 per exam.

In 1993, several states in the Northeast asked the New England Interstate Water Pollution Control Commission (NEIWPCC) to look into the possibility of providing UST contractor certification on a regional basis. NEIWPCC has worked with state regulators and contractors from Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont toward this goal.

The Chairman of the Board of Underground Storage Tank Installers (BUSTI) in Maine, Gerry LaPointe, and its staff, Jim Hynson, agreed that the IFCI examination does not meet Maine's reciprocity standard of "no less stringent" than Maine's program. However, BUSTI fully supports efforts in the other states to provide training and testing for underground storage tank installers.

In January 1993, the states reached consensus on the generic technical knowledge that should be addressed in a certification exam for installers and removers. The group agreed on the purpose of a certification program, the essential element of a state licensing program. The group also recognized that although NEIWPCC could assist the states in finding a testing service and identifying training opportunities to be offered on a voluntary basis, the states themselves would have to seek authority for any mandatory certification or licensing program and take responsibility for enforcement. Currently, Maine is the only Northeast state with licensing authority. The state's UST installer certification program has been in place since 1986. Maine has been active in participating in this regional certification evaluation effort but has no need or interest in using the IFCI testing service.

ASI's electronic testing service includes two sites in Maine, Bangor and Portland, where exams can be administered twice a month. Thus far, the Board has not addressed the issue of whether or not the IFCI examination could receive continuing education credits. However, the Board's rules allow for any installer to apply for credit for anything he or she has accomplished and feels is worthy of obtaining continuing education credits.

"I feel really good about the certification program," says John Pirong of TINY (Tank Installers of NY). "I think the

trend toward getting better qualified people working in this industry is very important. Through this process, you are providing some measure of insurance that the professional installer understands all the proper environmental and safety procedures associated with installing and testing tanks."

The proper installation and removal of UST systems at motor fuel dispensing facilities is essential to preventing pollution and protecting human health and safety, not to mention protecting the livelihood of tank owners. The federal government has set a 1998 deadline for upgrading the nation's USTs to state-of-the-art technical standards. As the federal deadline draws near, there will be an unprecedented demand for tank removals and installations. Substandard work could jeopardize both human health and the environment, cause affected tank owners undue economic hardship as a result of costly environmental remediation, and create another generation of leaking tanks.

For information on how to take the exam in the Northeast area, contact one of the following state agency contacts:

Connecticut -- Scot Deshefy, DEP, (203) 424-3374
 New Hampshire -- Lynn Woodard, DES, (603) 271-3644
 New York -- Russ Brauksieck, DEC, (800) 241-3888
 Rhode Island -- Dan Russell / Eric Beck, DEM, (401) 277-2797
 Vermont -- Ted Uncles, DEC, (802) 241-3888

Jennie Bridge, Environmental Scientist and Coordinator, UST / LUST Work Group; New England Interstate Water Pollution Control Commission. Article excerpted and edited by Jim Hynson from planned publication in NEIWPCC Newsletter, LUSTLine Bulletin #21.

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If you have any questions of a technical or regulatory nature that you wish to have answered in this newsletter, please direct them to Jim Hynson, Board of Underground Storage Tank Installers, c/o Maine Department of Environmental Protection, State House Station 17, Augusta, ME 04333. Or call 207/287-2651.

Those Tanks in America's Backyards and Basements

Aboveground and Underground Home Heating Oil Tanks

It was a stormy March day. Mrs. Delbert Beal, warm and snug in home along Maine's oft tempestuous coast, was troubled by the unmistakable odor of fuel oil. She put in a call to her home heating oil dealer, who dispatched a burner technician. After a brief inspection of the furnace and the outside aboveground oil tank, he assured her that things looked fine. But, Mrs. Beal continued to smell fuel oil, so she called her oil dealer again. The technician paid another visit and, after another inspection, reassured her that all was right with the world.

But being 76 years old and of stern Yankee blood, Mrs. Beal knew something was wrong and that she would have to take up this investigation herself. She crawled under the house. (Because of shallow bedrock conditions, her house has no basement, only a small crawl space.) Before long, she discovered fuel oil running along the surface of the bedrock. She called her oil dealer again and personally escorted the technician under the house for a visual inspection.

After further investigation, the technician determined that the source of the problem was a copper fuel supply line, which was covered by about 6 inches of soil, that ran along the bedrock. The oil company replaced the line and reported the leak to the Maine Department of Environmental Protection (MDEP).

To make a long story short, Mrs. Beal's well is contaminated, the MDEP has spent \$52,000, to date, on cleanup, and Mrs. Beal is still looking at a \$700 bill from the oil dealer for service calls. At the urging of her lawyer, the oil company agreed to reimburse MDEP for cleanup.

In this edition of *Tanks Downeast*, I'll leave the realm of gasoline stations and convenience stores and move into backyards and basements to explore the domestic side of tanks and recommend a good healthy dose of leak prevention and cure. Mrs. Beal's story is true (the name has been changed to protect the innocent) and illustrates an aboveground tank (AST), rather than an UST, problem for a reason: ASTs are the source of most of our home heating oil tank cleanups ... so much so, that MDEP has initiated a series of Public Service Announcements to educate the homeowner.

Politics and Permeability

Fuel oil is a mid-distillate petroleum product, which is used for home heating primarily in New England, the mid-Atlantic states, Washington, and Oregon. Other sections of the country rely more on electric power, natural gas, and liquefied petroleum gas (LPG). Under Subtitle I of R.C.A., Congress exempted tank systems used for storing heating oil for consumptive use on the premises where stored. Maine, along with several other states, however, does regulate fuel oil tanks. Maine uses the same age-based removal schedule and secondary containment replacement requirements that apply to the state's gasoline storage tanks.

Physically, fuel oil is more viscous than the lighter petroleum distillates (such as gasoline) and generally doesn't move through the soil as fast or as far as gasoline. Based on our experience, UST fuel oil contamination tends to be localized--confined to the tank owner's, and maybe the neighbor's, well. But, there are always exceptions. Fuel oil will move faster and farther if it finds a convenient conduit, such as a bedrock fracture or certain kinds of manmade contrivances.

For example, one homeowner's basement tank sprang a leak, and the fuel oil made its way through a fracture in the basement floor directly to the bedrock well outside. Basement sump pumps are notorious for pumping fuel oil from a spill directly into gravel drains around homes. Water and electric line trenches that are backfilled with sand are potential conduits. Storm sewers have also proven to be excellent fuel oil conduits.

Plumbing Particulars

Before going into the modes of fuel oil storage system failure, I'll explain to the non-fuel oil user how these systems are set up. They are designed and installed in most states according to the National Fire Protection Association (NFPA) *Code 31, Installation*



of Oil-Burning Equipment. Backyard and basement aboveground tanks, usually between 275 and 330 gallons in capacity, are constructed to Underwriters Laboratories (UL) *80-Standard for Steel Inside Tanks for Oil-Burner Fuel.*

Although the capacity of basement storage tanks is limited by code to a total of 660 gallons, usually economic and space constraints dictate the use of a single 275-gallon tank. These "275s" are oval in shape (see diagram) so they can fit through a basement door or bulkhead. Outside tanks that are larger than 660 gallons must be constructed to UL *142-Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids.*

In the underground realm, fuel oil USTs are supposed to meet the UL *58-Standard for Steel Underground Tanks for Flammable and Combustible Liquids*, but "midnight" variances from this standard range from 2,000 gallon boiler plate pressure vessels to 14-gauge 275s. While the pressure vessels seem like overkill, the thin walled 275s were clearly not designed to be buried and are easy targets for corrosion.

In the past, homeowners installed fuel oil tanks in the ground for various reasons--the lack of space, no basement, or, perhaps, a failure to recognize the aesthetic value of the aboveground tank as a lawn ornament. Also, the oil "crisis" of the 1970s prompted many homeowners to install large capacity (i.e., 550 to 2,000-gallon) USTs.

The piping for both above and below ground fuel oil systems typically consists of a 3/8-inch copper supply line, which runs between the tank and the furnace. For basement installations, past practice was to run the line under the concrete floor, along with all the other "plumbing" (more of this practice later), or along the floor or walls.

Oil burners need a constant supply of fuel but can only burn it at a certain rate. Aboveground tanks, by virtue of the head pressure from the tank, provide a steady flow of fuel to the burner through a single line. UST fuel oil piping requires a two-line system, a fuel supply suction line, and a return line that "returns" the fuel that's not used by the burner back to the tank. If the suction line leaks, the furnace starts to sputter, however, if the return line leaks you'd never know it. That's why our

rules require that both the suction and return lines be installed in secondary containment with leak detection.

In the past, here in Maine, fill lines and vent lines for both UST and AST home heating oil tanks were constructed of 1 1/4" to 1 1/2" black iron pipe (clearly not suitable for UST piping by today's standards) and run through the basement wall or against the house to where they could be accessed by the fuel oil delivery driver.

The driver makes a tight connection on the fill pipe and pumps product into the tank under pressure. He or she knows when the tank is full by listening to the vent whistle, an overfill device that's attached to the vent line at the tank. The fitting contains a tube whistle that extends into the tank at a pre-established level. As the tank is being filled the air rushes through the tube and out the vent line, producing a whistling noise that the driver can hear. As fuel rises up to the level of the tube and submerges it, the whistle is silenced. The driver then knows to terminate the delivery.

Failures and Fixes

There are a number of potential integrity problems associated with fuel oil systems, but let's look at the main culprit -- piping -- and its partner in crime -- corrosion. Galvanic corrosion is certainly a predator that lurks ready to pounce on buried metals given the right conditions. This type of corrosion usually involves differences between metals or differences between chemical properties of the backfill material surrounding the pipe.

The latter is likely to be the problem in Mrs. Beal's case -- copper lines resting on bedrock and covered with soil. Another ubiquitous situation exists where copper lines rest on soil and are covered by a concrete basement floor. The point where soil, concrete, and copper meet tends to be where most corrosion occurs. When you add a little water, the corrosion circuit is complete.

The current installation practice in Maine is to sleeve the copper lines in PVC or ABS plastic pipe to prevent contact with this aggressive environment. Another way of keeping copper piping out of harm's way is to run it along the basement wall. This gets it aboveground and off the floor. Slips, trips, and falls don't do you or the piping any good, so if you must run the line across the floor, cover it with door threshold stripping.

Fuel filters and shut-off valves can also corrode if partially buried. These items, as well as the exposed portion of the piping are

susceptible to damage, especially in outside situations. For example, at another coastal, shallow bedrock site, a snow plow clipped the fuel line and filter. The fuel leaked out and the owner thought she was simply out of fuel. The oil company filled the tank up and in a few days the fuel was gone. As a result, seven homes have contaminated wells. If MDEP were to install a community water supply (they are on carbon filter systems for now) the cost would be \$1 M... all because of a little 275-gallon home heating oil AST.

Steel UST's fail, for the most part, because of corrosion, but aboveground 275s fail in more "comical" ways. The spindly steel legs rust out, frost heave tips tanks over, snow and ice falling from roofs break lines, and ruptures from vent restrictions occur frequently. This latter example seems to happen to a lot of manifold tanks--the first one fills up and ruptures, probably because of inadequate venting of the tank. AST's can also fail because of corrosion, especially if they have water in the bottom or if they are sitting right on the ground.

In some cases, secondary containment for home heating oil AST's would be a good idea. Most national codes don't mandate secondary containment unless storage capacity exceeds 660 gallons for a single tank or 1,320 gallons aggregate. I would recommend secondary containment if the tank is located in a basement with an unfinished (dirt or

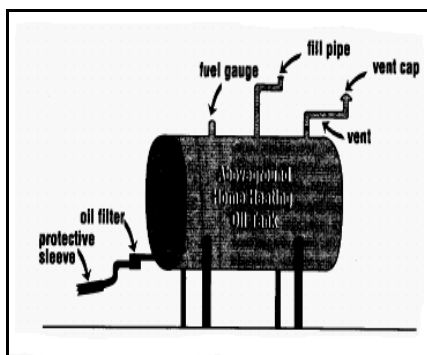
continuous leak detection. If you are a home heating oil UST owner in a state that does not regulate home heating oil UST's, it doesn't mean there is nothing to worry about. If you have a buried 275, remove it ... now!

You may say to yourself, "Why should I be concerned, I live in town and have city water?" Just wait until you try to sell or refinance your home. Lending institutions and prospective buyers are very leery about UST's. We find dozens of unregistered home heating oil UST's each year as a result of property transfers.

So now that you know what can happen to that innocuous looking tank in your basement, backyard, or in the ground, you are halfway to winning the battle. Environmental awareness begins at home, so pay attention to your heating oil system. For heaven's sake, if you start using more fuel than normal, don't keep filling up the tank... investigate.



W. David McCaskill, petroleum storage specialist with the Maine Department of Environmental Protection. Reprinted from LUSTLine Bulletin 20, June 1994.



bedrock) floor or if the tank is outside in an area with sandy soils and within 50 feet of a well. You can buy, for a price, tanks contained in attached steel dikes. I've also seen tanks with secondary containment consisting of the bottom half of a concrete septic tank.

Famous Last Words

One last word on UST home heating oil tanks. Because UST's are concealed, in my opinion, they are not for home use, unless secondarily contained with

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Self Inspection Checklists

Self Inspection Checklist for

Basement and Backyard

Aboveground Home Heating Oil Tanks

*If you answer *YES" to any of the following questions, call your oil burner technician for a more detailed inspection and corrective measures. This is a list of items you can easily observe. But remember, look, don't touch. It's best to call a licensed oil heat technician and let a professional take care of it.*

- q Are the tank legs unstable or on a precarious foundation?
- q Are there any signs of rust, weeps, wet spots, or excessive dents on the tank's surface?
- q Are there any drips or signs of leakage around the filter or valves?
- q Do the oil lines between the tank and the furnace run either under concrete or aboveground without being encased in protective tubing?
- q Is there danger of snow or ice falling on the tank?
- q Is the tank vent clogged or restricted because of ice, snow, or insect nests? (Screened vents can be used to prevent insect nest problems.)
- q Is the overfill whistle silent when the tank is being filled? (Ask your delivery person.)
- q Are there signs of spills around the fill pipe or the vent pipe?
- q Is the fuel-level gauge cracked, stuck, or frozen ... or are there signs of oil around it?
- q Are you using more oil than normal?

Self Inspection Checklist for Home Heating Oil USTS.

If you answer "YES" to any of the following questions, call your oil burner technician for a more detailed inspection and corrective measures. (Of course, the best thing to do is to remove your UST and switch to aboveground storage.)

- q Are you using more fuel than normal?
- q Is your tank taking on water--a rise in water level greater than 1/2" for an 8-to 12-hour period? (Your oil-burner technician can check for water or provide you with water-finding paste so you can check yourself.)*
- q Are there signs of oil sheens in nearby streams, wetlands, or drainage ditches?*
- q Are there signs of distressed (withered) vegetation over or down slope of the tank?*
- q Is the tank vent clogged or restricted because of ice, snow, or insect nests? (Screened vents can be used to prevent insect nest problems.)
- q Is the overfill whistle silent when the tank is being filled? (Ask your delivery person.)
- q Are there signs of spills around the fill pipe or the vent pipe?

* This condition requires notification of the DEP.

Enforcement Update



One installer received a civil penalty of \$800 after a hearing for failing to install continuous interstitial space monitoring in an on-site consumptive fuel oil tank installation. The installer had retrofitted the monitoring prior to the hearing, and the Board reduced its normal penalty for this violation of \$1,000 plus suspension since the installation occurred one month after the effective date of the interstitial space monitoring requirements.

A second installer agreed to a Consent Agreement which included a six (6) month suspension of his/her certificate for failing to incorporate interstitial space monitoring into underground piping associated with two above ground tank installations. Two other installers participated in one of these two installations, and received three (3) month suspensions and \$1,000 civil penalties after a hearing before the Board for allowing the violation to occur.

Four installers found themselves with insufficient continuing education and expired certificates. All four cases were resolved with Consent Agreements in which the installers were assessed \$250 civil penalties and allowed six (6) month probationary periods in order to complete their continuing education.

Four other cases involved installers who used drop tubes that were too short in their installations. (DEP's Air Bureau requires drop tubes to extend to within 6 inches of the bottoms of the tanks for Stage I vapor recovery). In these cases, the installers immediately went back out to the sites and replaced the non-conforming drop tubes. Once corrections were made, the Board dismissed the charges.

One allegation that an installer had failed to report evidence of a leak was dismissed when the investigation determined that another installer was actually responsible for the tank removal in question. A Consent Agreement is pending for another installer regarding this incident.

Training Opportunities



We've accidentally discovered a number of installers have taken the Enviroflex piping field installation instruction that has been offered by Gould Equipment Co. The Board granted two (2) hours credit for this course last spring, but we fear many installers have taken it and no one has given us copies of their certificates. If you've successfully completed this instruction, send us a copy of your certificate so that we may credit you with the two hours continuing education credit that you deserve.

Since the last newsletter, the Board accredited or renewed the credit of the following courses:

- * A program on Stage I vapor recovery and sponsored by the Maine Oil Dealers' Association (MODA) and the DEP's Bureau of Air Quality Control was held in October, 1994. It was granted one (1) credit hour by the Board.
- * Credit was renewed for OSHA courses taught by Safetech, Inc. The 40 hour course was renewed for eight (8) hours credit, while two (2) hours credit was

granted to their eight (8) hour refresher. Courses are offered on an as-needed basis. Contact Safetech Consultants, 500 Southborough Dr., South Portland, ME 04106; 207-773-5753.

* Credit was renewed for two courses offered by the Maine Department of Labor. "Understanding OSHA's 1910 General Industry Standards," and "Understanding OSHA's 29 CFR 1926 Construction Industry Standards," were both granted eight (8) hours credit each. Contact Lynn Lamstein, Maine Department of Labor, Bureau of Labor Standards, State House Station 83, Augusta, ME 04333; 207-624-6460.

* DEP and MODA are offering "Safety Training for Purging/Cleaning of Petroleum UST's" on February 23, 1995. The Board granted four (4) hours credit to this course. Contact Maine Oil Dealers' Association, P.O. Box 906, Yarmouth, ME 04096; 207-846-5131.

The Board also granted, on four (4) occasions, installers with individual credit on educational offerings they attended but had not received credit through the program sponsor. If you find an offering that has not been accredited but feel it is worthy and relevant for tank installers, by all means apply to the Board to obtain credit for your attendance at the offering.

Who You Gonna Call?

It's Saturday, or a holiday, or one of those infamous shutdown days. The State's closed and will not reopen until sometime after the end of the millennium. You're at a tank yank and you start smelling something funky -- something like old gasoline. Who you gonna call?

This is not an off the wall situation. The Board has had at least three enforcement cases in the last year in which, because the State was closed when the installer was working, the installer either did not call anybody when he/she found contamination, or called somebody who had no reason to be around to answer.

The answer to this situation is simple: 1-800-482-0777. DEP and the Maine State Police maintain this phone number 24 hours a day, seven (7) days a week, 365 days a year. The actual phone rings in the State Police Barracks in Gray, and messages are forwarded to people in DEP's Response Services Division. That division further maintains an "on-call" schedule, whereby designated response people are available to be reached at all times. Those folks get paid for being "on call," although not as much as for being "on duty."

While the prime purpose of this telephone is for emergencies, it also is to report all evidences of leaks that you find after normal business hours. If you do have to call, you may very well be instructed to stabilize the site yourself until normal working hours when DEP's Response folks can get out to the site. The Response folks will be using the information you give them to determine whether or not the situation is an emergency which requires their immediate presence. That's because if the DEP response person that is on-call actually goes out on a call, the "on call" pay becomes "call out" pay (much higher) immediately. In the interest of not wasting the State's money, you probably won't get an after hours visit unless it's a real emergency.

Training Opportunities (continued)

Call (cont.)

But just because DEP won't come visit until the State reopens does not mean DEP doesn't want to hear about the contamination. Just hearing about it helps the staff schedule their time, and there is much advice they can give you over the phone to help stabilize the problem and work around it until normal working hours.

Finally, remember that you, as the installer, have a direct responsibility for letting the DEP know of any evidences of leaks that you encounter, and in calling within 24 hours of observing the evidence. There will probably be no action against you if somebody else actually calls -- but past cases of installers trying to argue that they thought the owner, the site assessor, the neighbor, or the neighbor's dog was supposed to call -- didn't work.

The Maine Installer

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BOARD OF UNDERGROUND
STORAGE TANK INSTALLERS
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